PREPARED FOR

Attn: Kristoffer Hinskey Arcadis U.S., Inc. 28550 Cabot Drive Suite 500 Novi, Michigan 48377

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JOB DESCRIPTION

Ford LTP - Off Site

JOB NUMBER

240-200103-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203

Eurofins Cleveland

Job Notes

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The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization

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Authorized for release by Michael DelMonico, Project Manager I <u>Michael.DelMonico@et.eurofinsus.com</u> (330)497-9396 Client: Arcadis U.S., Inc. Project/Site: Ford LTP - Off Site Laboratory Job ID: 240-200103-1

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Definitions/Glossary

Client: Arcadis U.S., Inc. Job ID: 240-200103-1

Project/Site: Ford LTP - Off Site

Qualifiers

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G	u	IV	ı	v	U	А

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
H	Indicates the analyte was analyzed for but not detected

Glossary

Ciocoary	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
n	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)

NC

MPN

MQL

Not Calculated

Not Detected at the reporting limit (or MDL or EDL if shown) ND

Most Probable Number

Method Quantitation Limit

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive **Quality Control** QC

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin) TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

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Case Narrative

Client: Arcadis U.S., Inc. Project: Ford LTP - Off Site

Job ID: 240-200103-1 Eurofins Cleveland

Job Narrative 240-200103-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- · Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 2/28/2024 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 2.3°C, 2.6°C, 3.1°C and 4.2°C.

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-604678 was outside the method criteria for the following analyte(s): Trichloroethene and Vinyl chloride. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Job ID: 240-200103-1

Method Summary

Client: Arcadis U.S., Inc.

Job ID: 240-200103-1

Project/Site: Ford LTP - Off Site

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CLE
8260D SIM	Volatile Organic Compounds (GC/MS)	SW846	EET CLE
5030C	Purge and Trap	SW846	EET CLE

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

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Sample Summary

Client: Arcadis U.S., Inc.

Project/Site: Ford LTP - Off Site

Job ID: 240-200103-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-200103-1	TRIP BLANK_105	Water	02/26/24 00:00	02/28/24 10:00
240-200103-2	MW-185S_022624	Water	02/26/24 11:57	02/28/24 10:00

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Detection Summary

Client: Arcadis U.S., Inc.

Job ID: 240-200103-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_105

Lab Sample ID: 240-200103-1

No Detections.

Client Sample ID: MW-185S_022624 Lab Sample ID: 240-200103-2

No Detections.

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Client Sample Results

Client: Arcadis U.S., Inc. Job ID: 240-200103-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_105

Lab Sample ID: 240-200103-1 Date Collected: 02/26/24 00:00

Matrix: Water

Date Received: 02/28/24 10:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/01/24 16:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/01/24 16:57	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 16:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/01/24 16:57	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 16:57	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/01/24 16:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		62 - 137			_		03/01/24 16:57	1
4-Bromofluorobenzene (Surr)	91		56 ₋ 136					03/01/24 16:57	1
Toluene-d8 (Surr)	101		78 - 122					03/01/24 16:57	1
Dibromofluoromethane (Surr)	100		73 - 120					03/01/24 16:57	1

Eurofins Cleveland

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Client Sample Results

Client: Arcadis U.S., Inc. Job ID: 240-200103-1

Project/Site: Ford LTP - Off Site

Date Received: 02/28/24 10:00

Client Sample ID: MW-185S_022624

Date Collected: 02/26/24 11:57

Lab Sample ID: 240-200103-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/05/24 12:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		68 - 127			-		03/05/24 12:08	1
- Method: SW846 8260D - Volat	ile Organic Comp	ounds by G	C/MS						
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/01/24 17:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/01/24 17:22	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 17:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/01/24 17:22	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 17:22	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/01/24 17:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			62 - 137			-		03/01/24 17:22	1
4-Bromofluorobenzene (Surr)	88		56 ₋ 136					03/01/24 17:22	1
Toluene-d8 (Surr)	99		78 - 122					03/01/24 17:22	1
Dibromofluoromethane (Surr)	100		73 - 120					03/01/24 17:22	1

Surrogate Summary

Client: Arcadis U.S., Inc.

Job ID: 240-200103-1

Project/Site: Ford LTP - Off Site

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water Prep Type: Total/NA

				Percent Sui	urrogate Recovery (Acc	
		DCA	BFB	TOL	DBFM	
Lab Sample ID	Client Sample ID	(62-137)	(56-136)	(78-122)	(73-120)	
240-200103-1	TRIP BLANK_105	118	91	101	100	
240-200103-2	MW-185S_022624	116	88	99	100	
240-200104-C-2 MS	Matrix Spike	105	99	99	91	
240-200104-C-2 MSD	Matrix Spike Duplicate	100	94	101	90	
LCS 240-604678/4	Lab Control Sample	106	103	106	88	
MB 240-604678/7	Method Blank	113	93	101	95	
0						

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8260D SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water Prep Type: Total/NA

			Percent Surrogate Recovery (Acceptance Limits)
		DCA	
Lab Sample ID	Client Sample ID	(68-127)	
240-200101-E-2 MS	Matrix Spike	102	
240-200101-E-2 MSD	Matrix Spike Duplicate	106	
240-200103-2	MW-185S_022624	99	
LCS 240-604941/4	Lab Control Sample	100	
MB 240-604941/7	Method Blank	112	
Surrogate Legend			
DCA = 1,2-Dichloroetha	ne-d4 (Surr)		

Eurofins Cleveland

Client: Arcadis U.S., Inc. Job ID: 240-200103-1

Project/Site: Ford LTP - Off Site

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 240-604678/7

Matrix: Water

Analysis Batch: 604678

Client Sample ID: Method Blank	(
Prep Type: Total/NA	

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/01/24 11:56	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/01/24 11:56	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 11:56	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/01/24 11:56	1
Trichloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 11:56	1
Vinyl chloride	1.0	U	1.0	0.45	ug/L			03/01/24 11:56	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		62 - 137		03/01/24 11:56	1
4-Bromofluorobenzene (Surr)	93		56 - 136		03/01/24 11:56	1
Toluene-d8 (Surr)	101		78 - 122		03/01/24 11:56	1
Dibromofluoromethane (Surr)	95		73 - 120		03/01/24 11:56	1

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analysis Batch: 604678

Matrix: Water

Lab Sample ID: LCS 240-604678/4

Spike LCS LCS %Rec Analyte Added Result Qualifier Unit %Rec Limits 1,1-Dichloroethene 25.0 21.6 86 63 - 134 ug/L 25.0 20.7 83 77 - 123 cis-1,2-Dichloroethene ug/L Tetrachloroethene 25.0 23.6 94 76 - 123 ug/L trans-1,2-Dichloroethene 25.0 22.9 ug/L 92 75 - 124 Trichloroethene 25.0 19.8 ug/L 79 70 - 122 Vinyl chloride 12.5 12.0 ug/L 60 - 144

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	106		62 - 137
4-Bromofluorobenzene (Surr)	103		56 - 136
Toluene-d8 (Surr)	106		78 - 122
Dibromofluoromethane (Surr)	88		73 - 120

Analysis Batch: 604678

-	
Lab Sample ID: 240-200104-C-2 MS	Client Sample ID: Matrix Spike
Matrix: Water	Prep Type: Total/NA

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	1.0	U	25.0	19.2		ug/L		77	56 - 135	
cis-1,2-Dichloroethene	1.0	U F2 F1	25.0	19.9		ug/L		80	66 - 128	
Tetrachloroethene	1.0	U	25.0	20.3		ug/L		81	62 - 131	
trans-1,2-Dichloroethene	1.0	U F2	25.0	21.1		ug/L		85	56 - 136	
Trichloroethene	1.0	U F2	25.0	18.7		ug/L		75	61 - 124	
Vinyl chloride	1.0	U	12.5	9.74		ug/L		78	43 - 157	

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		62 - 137
4-Bromofluorobenzene (Surr)	99		56 - 136
Toluene-d8 (Surr)	99		78 ₋ 122

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Client: Arcadis U.S., Inc. Project/Site: Ford LTP - Off Site Job ID: 240-200103-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-200104-C-2 MS

Lab Sample ID: 240-200104-C-2 MSD

Matrix: Water

Analysis Batch: 604678

Client Sample ID: Matrix Spike

Prep Type: Total/NA

MS MS %Recovery Qualifier Surrogate

Limits Dibromofluoromethane (Surr) 91 73 - 120

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Matrix: Water

Analysis Batch: 604678

Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1.0	U	25.0	17.9		ug/L		71	56 - 135	8	26
1.0	U F2 F1	25.0	15.9	F2 F1	ug/L		64	66 - 128	22	14
1.0	U	25.0	19.1		ug/L		76	62 - 131	6	20
1.0	U F2	25.0	17.0	F2	ug/L		68	56 - 136	21	15
1.0	U F2	25.0	15.8	F2	ug/L		63	61 - 124	17	15
1.0	U	12.5	10.1		ug/L		81	43 - 157	3	24
	Result 1.0 1.0 1.0 1.0 1.0 1.0	1.0 U F2 F1	Result Qualifier Added 1.0 U 25.0 1.0 U F2 F1 25.0 1.0 U 25.0 1.0 U F2 25.0 1.0 U F2 25.0	Result Qualifier Added Result 1.0 U 25.0 17.9 1.0 U F2 F1 25.0 15.9 1.0 U 25.0 19.1 1.0 U F2 25.0 17.0 1.0 U F2 25.0 15.8	Result Qualifier Added Result Qualifier 1.0 U 25.0 17.9 1.0 U F2 F1 25.0 15.9 F2 F1 1.0 U 25.0 19.1 1.0 U F2 25.0 17.0 F2 1.0 U F2 25.0 15.8 F2	Result Qualifier Added Result Qualifier Unit 1.0 U 25.0 17.9 ug/L 1.0 U F2 F1 25.0 15.9 F2 F1 ug/L 1.0 U 25.0 19.1 ug/L 1.0 U F2 25.0 17.0 F2 ug/L 1.0 U F2 25.0 15.8 F2 ug/L	Result Qualifier Added Result Qualifier Unit D 1.0 U F2 F1 25.0 17.9 ug/L 1.0 U F2 F1 25.0 15.9 F2 F1 ug/L 1.0 U 25.0 19.1 ug/L 1.0 U F2 25.0 17.0 F2 ug/L 1.0 U F2 25.0 15.8 F2 ug/L	Result Qualifier Added Result Qualifier Unit D %Rec 1.0 U 25.0 17.9 ug/L 71 1.0 U F2 F1 25.0 15.9 F2 F1 ug/L 64 1.0 U 25.0 19.1 ug/L 76 1.0 U F2 25.0 17.0 F2 ug/L 68 1.0 U F2 25.0 15.8 F2 ug/L 63	Result Qualifier Added Result Qualifier Unit D %Rec Limits 1.0 U 25.0 17.9 ug/L 71 56 - 135 1.0 U F2 F1 25.0 15.9 F2 F1 ug/L 64 66 - 128 1.0 U 25.0 19.1 ug/L 76 62 - 131 1.0 U F2 25.0 17.0 F2 ug/L 68 56 - 136 1.0 U F2 25.0 15.8 F2 ug/L 63 61 - 124	Result Qualifier Added Result Qualifier Unit D %Rec Limits RPD 1.0 U 25.0 17.9 ug/L 71 56 - 135 8 1.0 U F2 F1 25.0 15.9 F2 F1 ug/L 64 66 - 128 22 1.0 U 25.0 19.1 ug/L 76 62 - 131 6 1.0 U F2 25.0 17.0 F2 ug/L 68 56 - 136 21 1.0 U F2 25.0 15.8 F2 ug/L 63 61 - 124 17

MSD MSD Qualifier Surrogate %Recovery Limits 1,2-Dichloroethane-d4 (Surr) 100 62 - 137 4-Bromofluorobenzene (Surr) 94 56 - 136 Toluene-d8 (Surr) 101 78 - 122 Dibromofluoromethane (Surr) 90 73 - 120

Method: 8260D SIM - Volatile Organic Compounds (GC/MS)

MR MR

Lab Sample ID: MB 240-604941/7

Matrix: Water

Analysis Batch: 604941

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Type: Total/NA

Dil Fac Analyte Result Qualifier RL MDL Unit Prepared Analyzed 1,4-Dioxane 2.0 U 2.0 0.86 ug/L 03/05/24 09:45 MB MB

Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 1,2-Dichloroethane-d4 (Surr) 112 68 - 127 03/05/24 09:45

Lab Sample ID: LCS 240-604941/4

Matrix: Water

Analysis Batch: 604941

	Spike	LCS	LCS				%Rec
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
1.4-Dioyane	10.0	9 12		ua/l		91	75 121

LCS LCS %Recovery Qualifier Surrogate Limits 68 - 127 1,2-Dichloroethane-d4 (Surr) 100

Lab Sample ID: 240-200101-E-2 MS

Matrix: water									Prep	Type: Total/NA
Analysis Batch: 604941										
	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,4-Dioxane	2.0	U	10.0	8.46		ug/L		85	20 - 180	

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QC Sample Results

Client: Arcadis U.S., Inc.

Project/Site: Ford LTP - Off Site

Job ID: 240-200103-1

Method: 8260D SIM - Volatile Organic Compounds (GC/MS) (Continued)

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	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		68 - 127

_		
Lab Sample	ID: 240-2001	01-E-2 MSD

Matrix: Water

1,2-Dichloroethane-d4 (Surr)

Analysis Batch: 604941											
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,4-Dioxane	2.0	U	10.0	9.04		ug/L		90	20 - 180	7	20
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								

68 - 127

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

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QC Association Summary

Client: Arcadis U.S., Inc.

Project/Site: Ford LTP - Off Site

Job ID: 240-200103-1

GC/MS VOA

Analysis Batch: 604678

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Bat
240-200103-1	TRIP BLANK_105	Total/NA	Water	8260D	
240-200103-2	MW-185S_022624	Total/NA	Water	8260D	
MB 240-604678/7	Method Blank	Total/NA	Water	8260D	
LCS 240-604678/4	Lab Control Sample	Total/NA	Water	8260D	
240-200104-C-2 MS	Matrix Spike	Total/NA	Water	8260D	
240-200104-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 604941

Lab Sample ID 240-200103-2	Client Sample ID MW-185S_022624	Prep Type Total/NA	Water	Method Prep Batch 8260D SIM
MB 240-604941/7	Method Blank	Total/NA	Water	8260D SIM
LCS 240-604941/4	Lab Control Sample	Total/NA	Water	8260D SIM
240-200101-E-2 MS	Matrix Spike	Total/NA	Water	8260D SIM
240-200101-E-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D SIM

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Lab Chronicle

Client: Arcadis U.S., Inc. Job ID: 240-200103-1

Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_105

Analysis

Lab Sample ID: 240-200103-1 Date Collected: 02/26/24 00:00

Matrix: Water

Dilution Batch Batch Batch Prepared Method Prep Type Туре Run Factor **Number Analyst** Lab or Analyzed

Client Sample ID: MW-185S_022624 Lab Sample ID: 240-200103-2

Date Collected: 02/26/24 11:57 **Matrix: Water**

604678 LEE

EET CLE

03/01/24 16:57

Date Received: 02/28/24 10:00

Date Received: 02/28/24 10:00

	Batch	Batch		Dilution	Batch		Prepared
Prep Type	Type	Method	Run	Factor	Number Analys	t Lab	or Analyzed
Total/NA	Analysis	8260D		1	604678 LEE	EET CLE	03/01/24 17:22
Total/NA	Analysis	8260D SIM		1	604941 MDH	EET CLE	03/05/24 12:08

Laboratory References:

Total/NA

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

8260D

Accreditation/Certification Summary

Client: Arcadis U.S., Inc. Job ID: 240-200103-1 Project/Site: Ford LTP - Off Site

Laboratory: Eurofins Cleveland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-24 *
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Jersey	NELAP	OH001	07-01-24
New York	NELAP	10975	04-01-24
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-24
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-24
West Virginia DEP	State	210	12-31-24

 $^{^{\}star}\,\text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$

Eurofins Cleveland

Chain of Custody Record

MICHIGAN Testal atory location: Brighton -- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

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		ENVIRONMENTAL	

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City/State/Zip: Novi, Mil, 48377	Em all: kristoff	er.hinskey@arc	odls com				Anal	lysis 1	urnar	ound '	lme							Aı	alys	es			1 of 1 COCs For lab use only
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Special lastractions/QC Requirements & Comments: Sample Address: 34921 BCCCO Submit all results through Cadena at jtomalia@cadenaco.c						1							, -										
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Cooler Received on College FAS Waypoint Client Diop Off Eurofins Courier Officer Receipt After-hough Drop-off Date/Time Burofins Cooler # Cooler Fast Ram Box Client Cooler Box Officer Packing material used Bertishe Wayp Foam Plastic Bag None Officer COOLANT: Welley Blue fee Dry Ice Water None COOLANT: Welley Blue fee Observed Cooler Form RGUN # Cooler temper/custody seals on the outside of the cooler(s)? If Yes Quantity Yes No Were the seals on the outside of the cooler(s)? If Yes Quantity Yes No Were the seals on the outside of the cooler(s)? Yes No Were the seals on the outside of the cooler(s)? Yes No Were tamper/custody seals intact and uncompromised? Shipper's packing slip attached to the cooler(s)? Dud custody papers accompany the sample(s)? Were the custody papers relinquished & signed in the appropriate place? Were the custody papers relinquished & signed in the appropriate place? Were the custody papers relinquished & signed in the appropriate place? Were the custody papers occompany the sample(s)? Supper's packing slip attached to the cooler(s)? Were correct bottle(s) used for the test(s) indicated? Dud all bottles arrive in good condition (Unbroken)? Sufficient quantity received to perform indicated analyses? Were all preserved sample(s) at the correct pH upon receipt? Were all preserved samples of min in any VOA vals? Wes all No All Strap Lattle Correct bottle samples of min and Grease of the correct pH upon receipt? Wes all No All Strap Lattle correct pH upon receipt? Wes all No All Strap Lattle correct pH upon receipt? Wes all No All Strap Lattle	Sample(s) were received after the recommended holding time had expired. Sample(s) were received with bubble >6 mm in diameter (Notify PM)	Sample(s)were further preserved in the laboratory Time preservedPreservative(s) added/Lot number(s)were further preserved in the laboratory VOA Sample Preservation Date/Time VOAs Frozen
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DATA VERIFICATION REPORT



March 07, 2024

Kris Hinskey Arcadis Inc 10559 Citation Ave Suite 100 Brighton, MI 48116

CADENA project ID: E203631

Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater

Project number: 30167538.402.04

Event Specific Scope of Work References: Sample COC Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory submittal: 200103-1 Sample date: 2024-02-26

Report received by CADENA: 2024-03-06

Initial Data Verification completed by CADENA: 2024-03-07

Number of Samples:2 Sample Matrices:Water Test Categories:GCMS VOC

Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

The following minor QC exceptions or missing information were noted:

MS/MSD recovery outliers or sample duplicate RPD outliers were not determined using a client sample from this submittal for the test and QC batch noted so qualification was not required based on these sample-specific QC outliers: GCMS VOC QC batch 604678.

GCMS VOC CCV STANDARD response outliers as noted in the laboratory submittal case narrative were not used to qualify client sample results as part of this level 2 data package verification review.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at http://clms.cadenaco.com/index.cfm.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
В	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
Е	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

Analytical Results Summary

CADENA Project ID: E203631

Laboratory: Eurofins Environment Testing LLC - Cleveland

Laboratory Submittal: 200103-1

		Sample Name: Lab Sample ID: Sample Date:	TRIP BLA 2402001 2/26/202	031			MW-1859 2402001 2/26/202	032	4	
				Report		Valid		Report		Valid
	Analyte	Cas No.	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier
GC/MS VOC										
OSW-8260D										
1,1-Dic	hloroethene	75-35-4	ND	1.0	ug/l		ND	1.0	ug/l	
cis-1,2-	Dichloroethene	156-59-2	ND	1.0	ug/l		ND	1.0	ug/l	
Tetrach	loroethene	127-18-4	ND	1.0	ug/l		ND	1.0	ug/l	
trans-1,	2-Dichloroethene	156-60-5	ND	1.0	ug/l		ND	1.0	ug/l	
Trichlor	oethene	79-01-6	ND	1.0	ug/l		ND	1.0	ug/l	
Vinyl ch	loride	75-01-4	ND	1.0	ug/l		ND	1.0	ug/l	
OSW-8260DSIM										
1,4-Dio	xane	123-91-1					ND	2.0	ug/l	



Ford Motor Company – Livonia Transmission Project

Data Review

Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-200103-1

CADENA Verification Report: 2024-03-07

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report: 53347R Review Level: Tier III Project: 30167538.402.02

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-200103-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample	Parent Sample	Ana	lysis
Sample ID	Labib	IVIALITA	Collection Date	Parent Sample	VOC	VOC SIM
TRIP BLANK_105	240-200103-1	Water	02/26/2024		Х	
MW-185S_022624	240-200103-2	Water	02/26/2024		Х	X

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Rep	orted		mance otable	Not
	No	Yes	No	Yes	Required
Sample receipt condition		Х		Х	
Requested analyses and sample results		X		Х	
Master tracking list		X		Х	
4. Methods of analysis		X		Х	
5. Reporting limits		X		Х	
6. Sample collection date		Х		Х	
7. Laboratory sample received date		Х		Х	
8. Sample preservation verification (as applicable)		Х		Х	
Sample preparation/extraction/analysis dates		Х		Х	
10. Fully executed Chain-of-Custody (COC) form		Х		Х	
Narrative summary of Quality Assurance or sample problems provided		Х		Х	
12. Data Package Completeness and Compliance		Х		Х	

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260D and 8260D SIM. Data were reviewed in accordance with USEPA National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999), as appropriate.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- · Concentration (C) Qualifiers
 - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
 - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260D/8260D-SIM	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample ID	Initial / Continuing	Compounds	Criteria
TRIP BLANK_105	Continuous Calibration Verification %D	Vinyl chloride	+23.7%
MW-185S_022624	Continuous Calibration Verification %D	Trichloroethene	-21.1%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
	DDE -0.05	Non-detect	R
	RRF <0.05	Detect	J
Initial and Continuing Calibration	DDE -0.041	Non-detect	R
Campidatori	RRF <0.01 ¹	Detect	J
	RRF >0.05 or RRF >0.01 ¹	Non-detect	No Action

Initial/Continuing	Criteria	Sample Result	Qualification
		Detect	
	%RSD > 20% or a correlation coefficient <0.99	Non-detect	UJ
Latetal Callingstian	%RSD > 20% of a correlation coefficient <0.99	Detect	J
Initial Calibration	0/ DOD 000/	Non-detect	R
	%RSD > 90%	Detect	J
	ND 000/ (1	Non-detect	UJ
	%D >20% (increase in sensitivity)	Detect	J
	(AD 000/ / L	Non-detect	UJ
Continuing Calibration	%D >20% (decrease in sensitivity)	Detect	J
	(A.D. 1994 (1) 11 11 11 11 11 11 11 11 11 11 11 11 1	Non-detect	R
	%D > 90% (increase/decrease in sensitivity)	Detect	J

Note:

4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate sample was not collected for samples from this SDG.

6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

¹RRF of 0.01 only applies to compounds which are typically poor responding compounds

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: 8260D/8260D-SIM	Rep	orted	Perfo Acce	Not Required	
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (G	C/MS)				
Tier II Validation					
Holding times/Preservation		Х		Х	
Tier III Validation					
System performance and column resolution		Х		Х	
Initial calibration %RSDs		Х		Х	
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х	Х		
Instrument tune and performance check		Х		Х	
Ion abundance criteria for each instrument used		Х		Х	
Field Duplicate RPD	Х				Х
Internal standard		Х		Х	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		Х		Х	
B. Quantitation Reports		Х		Х	
C. RT of sample compounds within the established RT windows		Х		Х	
D. Transcription/calculation errors present		Х		X	
E. Reporting limits adjusted to reflect sample dilutions		Х		Х	
N	1	1		1	1

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

VALIDATION PERFORMED BY: Dilip Kumar

SIGNATURE:

DATE: March 21, 2024

PEER REVIEW: Andrew Korycinski

DATE: April 2, 2024

CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS

Chain of Custody Record

MICHIGAN Test rica Laboratory location: Brighton -- 10448 Citation Drive, Suite 200 / Brighton, MI 48116 / 810-229-2763

TestA	m	er	icc
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Client Contact 100	Regulat	tory program:	:		- DW		N	PDES		Dries.	RCR	RA		Other											TestA	merica Laboratories
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ddress: 28550 Cabot Drive, Suite 500	Telephone: 248	-994-2240					Telepi	one: 2	248-9	94-22	40					Teleph	one: 3	330-49	7-93	96					-	
Ity/State/Zip: Novi, Mil. 48377	Em all: kristoff	or blad ov 6 or						nalysis				me									·es				E or lab	1 of 1 COCs
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					Solid	Other:	нггон	HCI					Filtered Sample (Y / N)	Composite=C / Grab=G	1,1-DCE 8260D	as-1,2-DCE 82600	Trans-1,2-DCE &260D	PCE 82 60D	TCE 82600	Vinyl Chloride	1,4-Dioxane					Sample Specific Notes / Special Instructions:
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Client Sample Results

Client: Arcadis U.S., Inc. Job ID: 240-200103-1 Project/Site: Ford LTP - Off Site

Client Sample ID: TRIP BLANK_105 Lab Sample ID: 240-200103-1

Date Collected: 02/26/24 00:00 **Matrix: Water** Date Received: 02/28/24 10:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/01/24 16:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/01/24 16:57	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 16:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/01/24 16:57	1
Trichloroethene	1.0	h nn	1.0	0.44	ug/L			03/01/24 16:57	1
Vinyl chloride	1.0	η Nη	1.0	0.45	ug/L			03/01/24 16:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		62 - 137					03/01/24 16:57	1
4-Bromofluorobenzene (Surr)	91		56 - 136					03/01/24 16:57	1
Toluene-d8 (Surr)	101		78 - 122					03/01/24 16:57	1
Dibromofluoromethane (Surr)	100		73 - 120					03/01/24 16:57	

Client Sample ID: MW-185S_022624 Lab Sample ID: 240-200103-2

Date Collected: 02/26/24 11:57 Date Received: 02/28/24 10:00

Method: SW846 8260D SIN	I - Volatile Orga	anic Comp	ounds (GC/N	IS)					
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	2.0	U	2.0	0.86	ug/L			03/05/24 12:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1 2-Dichloroethane-d4 (Surr)	99		68 - 127			-		03/05/24 12:08	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	1.0	U	1.0	0.49	ug/L			03/01/24 17:22	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.46	ug/L			03/01/24 17:22	1
Tetrachloroethene	1.0	U	1.0	0.44	ug/L			03/01/24 17:22	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.51	ug/L			03/01/24 17:22	1
Trichloroethene	1.0	₩ UJ	1.0	0.44	ug/L			03/01/24 17:22	1
Vinyl chloride	1.0	Ŋ N	1.0	0.45	ug/L			03/01/24 17:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116	62 - 137		03/01/24 17:22	1
4-Bromofluorobenzene (Surr)	88	56 - 136		03/01/24 17:22	1
Toluene-d8 (Surr)	99	78 - 122	1	03/01/24 17:22	1
Dibromofluoromethane (Surr)	100	73 - 120		03/01/24 17:22	1

Matrix: Water